

**We Claim:**

1. A method for controlling a brake system of a vehicle wherein braking effect on the vehicle wheels is a function of brake pedal force exerted by the operator, said braking effect being enhanced by an adjustable braking force booster, comprising:

detecting dynamic conditions of operation of said vehicle;

analyzing said dynamic conditions to detect a condition of vehicle instability; and

increasing the force boosting effect of said braking force booster when said analysis indicates condition of vehicle instability.

2. A method according to claim 1 wherein said force boosting effect of said braking force booster is returned to an original condition where said analysis no longer indicates a condition of vehicle instability.

3. A method according to claim 1 wherein said adjustable braking force booster provides a first normal braking force as a function of brake pedal pressure for normal vehicle operation and a second higher braking force as a function of brake pedal pressure when said analysis indicates a condition of vehicle instability.

4. A method as specified in claim 3 wherein said condition of vehicle instability causes said braking force booster to switch to said second braking force as a function of brake pedal pressure.

5. A method according to claim 1 further comprising monitoring operator use of at least one vehicle control to detect a condition wherein the operator may apply full braking and

increasing the force boosting effect of said braking force booster when said monitoring indicates a condition wherein said operator may apply full braking.

6. A method as specified in claim 5 wherein said monitoring comprises monitoring the operator's use of the accelerator.

7. A method as specified in claim 6 wherein said condition wherein said operator may apply full braking is detected by rapid release of said accelerator.

8. A method for controlling a braking system of a vehicle having at least one clamping device for braking a vehicle, and an actuator for moving said clamping device into clamping engagement, comprising:

detecting dynamic conditions of operation of said vehicle;  
analyzing said dynamic conditions to detect a condition of vehicle instability; and  
in response to detection of a condition of vehicle instability operating said actuator to overcome free play of said clamping device.

9. A method according to claim 8 further comprising monitoring operator use of at least one vehicle control to detect a condition wherein the operator may apply full braking and operating said actuator to overcome free play of said clamping device when said monitoring indicates a condition wherein said operator may apply full braking.

10. A method as specified in claim 9 wherein said monitoring comprises monitoring the operator's use of the accelerator.

11. A method as specified in claim 10 wherein said condition wherein said operator may apply full braking is detected by rapid release of said accelerator.
12. A braking system for a vehicle comprising:
  - a brake pedal for operation by a vehicle operator for applying braking force;
  - a braking force booster for increasing said braking force, said booster providing a first normal braking force as a function of force applied to said brake pedal and change said normal braking force as a function of force applied to said brake pedal; and
  - a processor responsive to supplied signals representing dynamic conditions of operation of said vehicle, said processor being programmed to analyze said dynamic conditions and provides said control signal to said booster to cause said booster to change braking force when said dynamic conditions indicate a condition of vehicle instability.
13. A braking system as specified in claim 12 wherein said braking force change is an increase of braking force as a function of force applied to said brake pedal.
14. A braking system as specified in claim 12 wherein said braking force has variable braking force as a function of said control signal.
15. A braking system as specified in claim 14 wherein said braking force booster has a second braking force as a function of force applied to said brake pedal, and wherein said control signal causes said booster to change from said first to said second braking force.
16. A braking system as specified in claim 12 wherein said processor is a part of one electronic stability system.

17. A braking system as specified in claim 12 further including a device for supplying said processor with signals representing a vehicle operator's use of at least one vehicle control, and wherein said processor is responsive to said vehicle control signals to detect an operator condition wherein the vehicle operator may apply full braking, and wherein said processor provide said control signal in response to said operator condition.

18. A braking system as specified in claim 17 wherein said vehicle control comprises an accelerator.

19. A braking system as specified in claim 18 wherein said processor detects said operator condition by rapid release of said accelerator.

20. A braking system for a vehicle comprising:

- a brake pedal for operation by a vehicle operator for applying braking force;
- at least one clamping device, responsive to an actuator, for applying said braking force to said vehicle;
- an actuator, responsive to said braking force and a control signal for operating said clamping device, wherein said control signal operator said actuator to overcome free play of said clamping device; and
- a processor responsive to supplied signals representing dynamic conditions of operation of said vehicle, said processor being programmed to analyze said dynamic conditions and provide said control signal to said actuator when said dynamic conditions indicate a condition of vehicle instability.

21. A braking system as specified in claim 20 wherein said processor is a part of one electronic stability system.

22. A braking system as specified in claim 20 further including a device for supplying said processor with signals representing a vehicle operator's use of at least one vehicle control, and wherein said processor is responsive to said vehicle control signals to detect an operator condition wherein the vehicle operator may apply full braking, and wherein said processor provide said control signal in response to said operator condition.

23. A braking system as specified in claim 22 wherein said vehicle control comprises an accelerator.

24. A braking system as specified in claim 23 wherein said processor detects said operator condition by rapid release of said accelerator.